AMENDMENTS TO THE CLAIMS

Please amend claims 1, 14, 29, 40, 52, 66 and 67 as set forth below.

Listing of Claims

1. (Currently amended) A vaso-occlusive implant, comprising:

an elongate, flexible, filamentous inner element;

a non-metallic expansile intermediate element coaxially surrounding the inner element and in intimate contact therewith substantially along the length of the inner member, said expansile intermediate element capable of expanding at a controlled rate to fill an aneurysm; and

an outer element coaxially surrounding the intermediate element and in intimate contact therewith, the outer element defining a gap or opening through which the intermediate element is exposed.

2. (Previously Presented) The vaso-occlusive implant of claim 1, wherein the inner element comprises a microcoil made of a biocompatible material selected from the group consisting of metal wire and polymeric filament.

3. (Previously Presented) The vaso-occlusive implant of claim 1, wherein the intermediate element includes an expansile polymeric material.

4. (Previously Presented) The vaso-occlusive implant of claim 1, wherein the outer element includes an open-wound, helically-coiled portion that defines the gap or opening through which the intermediate element is exposed.

5. (Previously Presented) The vaso-occlusive implant of claim 1, wherein the inner element has proximal and distal ends, and wherein the device further comprises a coupling element attached to the proximal end.

6. (Previously presented) The vaso-occlusive implant of claim 3, wherein the expansile polymeric material consists essentially of a hydrogel.

7. (Previously Presented) The vaso-occlusive implant of claim 6, wherein the hydrogel is of a type that expands in response to a change in an environmental parameter.

8. (Previously Presented) The vaso-occlusive implant of claim 7, wherein the environmental parameter is selected from the group consisting of temperature and pH.

9. (Previously Presented) The vaso-occlusive implant of claim 1, wherein the intermediate element, when expanded, extends through the openings of the outer element to form an exterior surface having an undulating configuration defining a chain of convexly-curved arcuate segments.

10. (Previously Presented) The vaso-occlusive implant of claim 1, wherein the inner element has proximal and distal ends, and wherein the outer element comprises an open-wound helical coil portion extending between proximal and distal end sections that are respectively attached to the inner element adjacent to the proximal and distal ends of the inner element, wherein the open-wound portion defines the gap or opening.

11. (Previously Presented) The vaso-occlusive implant of claim 10, wherein the proximal end section of the outer element includes a close-wound helical coil section.

12. (Previously Presented) The vaso-occlusive implant of claim 10, wherein each of the proximal and distal end sections of the outer element includes a close-wound helical coil section.

13. (Previously Presented) The vaso-occlusive implant of claim 11, further comprising a coupling element attached to the proximal end of the inner element and to the proximal end section of the outer element.

14. (Currently amended) A vaso-occlusive implant comprising:

first, second, and third elongate, flexible elements arranged coaxially, wherein the first element is a filamentous inner element, the second element is an expansile intermediate element, and the third element is an outer element having an opening or gap through which the intermediate element swells at a controlled rate to fill an aneurysm, and wherein at least one of the inner and intermediate elements is made at least in part of a non-metallic biocompatible material.

15. (Previously Presented) The vaso-occlusive implant of claim 14, wherein the biocompatible material includes a bioactive agent.

16. (Previously Presented) The vaso-occlusive implant of claim 14, wherein the biocompatible material includes a therapeutic compound.

17. (Previously Presented) The vaso-occlusive implant of claim 14, wherein the inner element comprises a microcoil made of a biocompatible material selected from the group consisting of metal wire and polymeric filament, and wherein the intermediate element is formed of a biocompatible polymeric material

18. (Previously Presented) The vaso-occlusive implant of claim 14, wherein the intermediate element includes an expansile polymeric material.

19. (Previously Presented) The vaso-occlusive implant of claim 14, wherein the outer element includes an open-wound, helically-coiled portion that defines the opening or gap through which the intermediate element swells.

20. (Previously Presented) The vaso-occlusive implant of claim 14, wherein the inner element has proximal and distal ends, and wherein the device further comprises a coupling element attached to the proximal end.

21. (Previously Presented) The vaso-occlusive implant of claim 18, wherein the expansile polymeric material consists essentially of a hydrogel.

22. (Previously Presented) The vaso-occlusive implant of claim 21, wherein the hydrogel is of a type that expands in response to a change in an environmental parameter.

23. (Previously Presented) The vaso-occlusive implant of claim 22, wherein the environmental parameter is selected from the group consisting of temperature and pH.

24. (Previously Presented) The vaso-occlusive implant of claim 14, wherein the intermediate element, when expanded, extends through the opening or gap of the outer element to form an exterior surface having an undulating configuration defining a chain of convexly-curved arcuate segments.

25. (Previously Presented) The vaso-occlusive implant of claim 14, wherein the inner element has proximal and distal ends, and wherein the outer element comprises an open-wound helical coil portion extending between proximal and distal end sections that are respectively attached to the inner element adjacent to the proximal and distal ends of the inner element, wherein the open-wound portion defines the opening or gap.

26. (Previously Presented) The vaso-occlusive implant of claim 25, wherein the proximal end section of the outer element includes a close-wound helical coil section.

27. (Previously Presented) The vaso-occlusive implant of claim 25, wherein each of the proximal and distal end sections of the outer element includes a close-wound helical coil section.

28. (Previously Presented) The vaso-occlusive implant of claim 26, further comprising a coupling element attached to the proximal end of the inner element and to the proximal end section of the outer element.

29. (Currently amended) A vaso-occlusive device, comprising:

an elongate, flexible, filamentous microcoil inner element;

an intermediate element coaxially surrounding the inner element and in intimate contact therewith and formed essentially of an expansile polymer capable of expanding at a controlled rate to fill an aneurysm; and

a substantially non-expansile outer element coaxially surrounding the intermediate element and in intimate contact therewith, the outer element defining a gaps or opening through which the intermediate element is exposed;

wherein the intermediate element, when expanded, protrudes through the gap or opening in the outer element and assumes a configuration with an undulating, convexly-curved outer surface defining a chain of arcuate segments, each having a diameter significantly greater than the diameter of the outer element.

30. (Original) The vaso-occlusive device of claim 29, wherein the microcoil is made of a biocompatible material selected from the group consisting of metal wire and polymeric filament.

31. (Original) The vaso-occlusive device of claim 29, wherein the outer element includes an open-wound, helically-coiled portion that defines the gap or opening through which the intermediate element is exposed.

32. (Original) The vaso-occlusive device of claim 29, wherein the inner element has proximal and distal ends, and wherein the device further comprises a coupling element attached to the proximal end.

33. (Original) The vaso-occlusive device of claim 29, wherein the expansile polymeric material consists essentially of a hydrogel.

34. (Original) The vaso-occlusive device of claim 33, wherein the hydrogel is of a type that expands in response to a change in an environmental parameter.

35. (Original) The vaso-occlusive device of claim 34, wherein the environmental parameter is selected from the group consisting of temperature and pH.

36. (Original) The vaso-occlusive device of claim 29, wherein the inner element has proximal and distal ends, and wherein the outer element comprises an open-wound helical coil portion extending between proximal and distal end sections that are respectively attached to the inner element adjacent to the proximal and distal ends of the inner element, wherein the open-wound portion defines the gap or opening.

37. (Original) The vaso-occlusive device of claim 36, wherein the proximal end section of the outer element includes a close-wound helical coil section.

38. (Original) The vaso-occlusive device of claim 36, wherein each of the proximal and distal end sections of the outer element includes a close-wound helical coil section.

39. (Original) The vaso-occlusive device of claim 37, further comprising a coupling element attached to the proximal end of the inner element and to the proximal end section of the outer element.

40. (Currently amended) A vaso-occlusive device, comprising:

an elongate, flexible, filamentous inner element;

a non-metallic expansile intermediate element coaxially surrounding the inner element and in intimate contact therewith, said expansile intermediate element capable of expanding at a controlled rate to fill an aneurysm; and

an outer element coaxially surrounding the intermediate element and in intimate contact therewith, the outer element defining a gap or opening through which the intermediate element is exposed;

wherein the inner element has proximal and distal ends, and wherein the outer element comprises an open-wound helical coil portion extending between proximal and distal end sections that are respectively attached to the inner element adjacent to the proximal and distal ends of the inner element, wherein the open-wound portion defines the gap or opening.

41. (Previously Presented) The vaso-occlusive device of claim 40, wherein the inner element comprises a microcoil made of a biocompatible material selected from the group consisting of metal wire and polymeric filament.

42. (Previously Presented) The vaso-occlusive device of claim 40, wherein the intermediate element includes an expansile polymeric material

43. (Previously Presented) The vaso-occlusive device of claim 40, wherein the outer element includes an open-wound, helically-coiled portion that defines the gap or opening through which the intermediate element is exposed.

44. (Previously Presented) The vaso-occlusive device of claim 40, wherein the inner element has proximal and distal ends, and wherein the device further comprises a coupling element attached to the proximal end.

45. (Previously Presented) The vaso-occlusive device of claim 42, wherein the expansile polymeric material consists essentially of a hydrogel.

46. (Previously Presented) The vaso-occlusive device of claim 45, wherein the hydrogel is of a type that expands in response to a change in an environmental parameter.

47. (Previously Presented) The vaso-occlusive device of claim 46, wherein the environmental parameter is selected from the group consisting of temperature and pH.

48. (Previously Presented) The vaso-occlusive device of claim 40, wherein the intermediate element, when expanded, extends through the openings of the outer element to form an exterior surface having an undulating configuration defining a chain of convexly-curved arcuate segments.

49. (Previously Presented) The vaso-occlusive device of claim 40, wherein the proximal end section of the outer element includes a close-wound helical coil section.

50. (Previously Presented) The vaso-occlusive device of claim 40, wherein each of the proximal and distal end sections of the outer element includes a close-wound helical coil section.

51. (Previously Presented) The vaso-occlusive device of claim 49, further comprising a coupling element attached to the proximal end of the inner element and to the proximal end section of the outer element.

52. (Currently amended) A vaso-occlusive device comprising:

first, second, and third elongate, flexible elements arranged coaxially, wherein the first element is a filamentous inner element, the second element is an expansile intermediate element capable of expanding at a controlled rate to fill an aneurysm, and the third element is an outer element having an opening or gap through which the intermediate element is exposed, and wherein at least one of the inner and intermediate elements is made at least in part of a non-metallic biocompatible material

wherein the inner element has proximal and distal ends, and wherein the outer element comprises an open-wound helical coil portion extending between proximal and distal end sections that are respectively attached to the inner element adjacent to the proximal and distal ends of the inner element, wherein the open-wound portion defines the opening or gap.

53. (Previously Presented) The vaso-occlusive device of claim 52, wherein the biocompatible material includes a bioactive agent.

54. (Previously Presented) The vaso-occlusive device of claim 52, wherein the biocompatible material includes a therapeutic compound.

55. (Previously Presented) The vaso-occlusive device of claim 52, wherein the inner element comprises a microcoil made of a biocompatible material selected from the group consisting of metal wire and polymeric filament, and wherein the intermediate element is formed of a biocompatible polymeric material

56. (Previously Presented) The vaso-occlusive device of claim 52, wherein the intermediate element includes an expansile polymeric material

57. (Previously Presented) The vaso-occlusive device of claim 52, wherein the outer element includes an open-wound, helically-coiled portion that defines the opening or gap through which the intermediate element is exposed.

58. (Previously Presented) The vaso-occlusive device of claim 52, wherein the inner element has proximal and distal ends, and wherein the device further comprises a coupling element attached to the proximal end.

59. (Previously Presented) The vaso-occlusive device of claim 56, wherein the expansile polymeric material consists essentially of a hydrogel.

60. (Previously Presented) The vaso-occlusive device of claim 59, wherein the hydrogel is of a type that expands in response to a change in an environmental parameter.

61. (Previously Presented) The vaso-occlusive device of claim 60, wherein the environmental parameter is selected from the group consisting of temperature and pH.

62. (Previously Presented) The vaso-occlusive device of claim 52, wherein the intermediate element, when expanded, extends through the opening or gap of the outer element to form an exterior surface having an undulating configuration defining a chain of convexly-curved arcuate segments.

63. (Previously Presented) The vaso-occlusive device of claim 52, wherein the proximal end section of the outer element includes a close-wound helical coil section.

64. (Previously Presented) The vaso-occlusive device of claim 52, wherein each of the proximal and distal end sections of the outer element includes a close-wound helical coil section.

65. (Previously Presented) The vaso-occlusive device of claim 63, further comprising a coupling element attached to the proximal end of the inner element and to the proximal end section of the outer element.

66. (Currently amended) A vaso-occlusive device comprising:

an expansile first member capable of expanding at a controlled rate to fill an aneurysm having an expanded diameter;

a second member helically surrounding the first member, the second member having a diameter smaller than the expanded diameter of the first member, such that portions of the first member expand through coils of the second member when the device is released in a vasculature.

67. (Currently amended) A vaso-occlusive device comprising:

an open-coiled element;

a expansile element capable of expanding at a controlled rate to fill an aneurysm and having a first state and a second state wherein:

in said first state said expansile element does not extend through openings between coils of the open-coiled element;

in said second state said expansile element is expanded through said openings between said coils of the open-coiled element.